

W5YI

National Volunteer Examiner Coordinator

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

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December 15, 1989

VP QUAYLE INQUIRES ABOUT 220-222 REALLOCATION

FCC begins proceeding to transform spectrum to Land Mobile operation

On Nov. 28 the FCC began the long process of converting 220-222 MHz from amateur operation to government and business use, as it declared necessary in September of last year. The Commission adopted a *Notice of Proposed Rulemaking* (NPRM) in *PR Docket 89-552* to establish proposed rules for the band -- rules that bear a striking resemblance to those proposed by United Parcel Service (see *W5YI Report, March 1, 1988*.) UPS plans to use narrowband amplitude companded technology to construct a nationwide data network.

The FCC has not yet released the text of the NPRM, but we know that it does NOT announce any date by which hams will have to vacate 220-222. Instead, the FCC will require amateurs to exit at the close of Docket 89-552, when service rules are finally adopted. The exact date and time that amateur operations must cease will be stated in a separate order. No one knows how much advance warning will be given.

Our guess is that the *Order* could appear one year from now. Because the issues are complex and untold millions of dollars of equipment investment and legal fees hang in the balance, it's possible that the FCC could issue a *Further Notice of Proposed Rulemaking* (FNPRM) to fine-tune some issues that might not be resolved in the initial NPRM. In that case, the FNPRM could take another year of comments and processing before hams are ordered to pull the plugs of their 220 MHz stations. The transferral of the spectrum to land mobile radio

use is contingent on the outcome of the ARRL and National Communications System appeals of the FCC reallocation decision. If the court remands the matter back to the FCC, the agency will have to take additional time to address any deficiencies ...or maybe even reverse the reallocation.

Amateur outrage at the reallocation continues to haunt the FCC, with Congressional letters of inquiry coming in months after the decision was made. One interesting item that came across our desk was a November 15 note from Vice President Dan Quayle to the FCC.

Mr. Quayle asked the FCC to respond within 48 hours to a telegram he received from Pasadena, Calif. amateur **William Cronkhite/K6QQN**. Cronkhite's telegram was a copy of a letter to the editor published in the *Los Angeles Times* of Oct. 21, 1989, written by **Alan Ginsburg/WA6TOI**.

Ginsburg described the *Condor Connection* 220 MHz repeater system, and the outstanding traffic service it rendered in the San Francisco earthquake.

"Condor uses the lower end of the 220 MHz ham band to connect its repeaters," Ginsburg said. "Under very suspicious and unusual circumstances, the FCC recently ruled that the use of this spectrum will be taken away and made available to commercial business interests. The loss will be a major one to the brilliant and dedicated hobbyists

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who built the system..."

FCC Chief Engineer Thomas P. Stanley responded to Cronkhite and sent a copy of the response to the Vice President. Stanley wrote, "We respectfully consider these contentions [of suspicious and unusual circumstances] to be without merit. ...The Commission fully considered the impact the allocation would have on the amateurs' ability to provide emergency communications. The Commission concluded that the amateurs will have ample spectrum to provide emergency communications."

Stanley reminded Cronkhite that the NTIA also needed part of the 220 MHz spectrum to meet government land mobile radio needs. The chief engineer examined the alternative allocations that have been suggested, and noted that the ARRL may submit a petition for secondary amateur access in 216-220 MHz.

"The Commission noted that while it is willing to consider this matter, potential impact on other users of this spectrum and potential interference, particularly to TV broadcasting, will need to be addressed." He closed with "We are strongly supportive of the amateur radio service and will continue to ensure that its allocation requirements are met, as we believe we have in this instance."

The proposed rules for 220-222 will permit 5 kHz channelization, a far narrower channel than typically used in land mobile radio. The FCC would create two hundred 5 kHz channel pairs, for both trunked and non-trunked assignments. Licenses would be granted on a first-come, first-serve basis to applicants qualifying under the government and business radio rules. Several blocks of channels will be set aside for nationwide licensees, who would have to meet strict technical and financial requirements in order to use the frequency across the country.

The most controversial aspect of the proposed rules was the lack of "loading" rules that would require licensees to have a certain number of users on the channel ...or lose it. This "takeback" policy has recovered over 2000 channels in the 800 MHz band from two-way radio businesses who did not meet required spectrum usage.

If you're wondering why channel use levels were not required in the NPRM, so were the Commissioners. Some of them complained that loading

was left out, and they hoped that commenters would address the issue. The staff left out loading because they believed that regular market forces would ensure that the band was used, also that the new technologies and services to be used in the band made it somewhat difficult to come up with requirements given the fact that they don't really know how much MHz to devote to each type of use.

The following is the text of a press release the FCC issued on *Docket 89-552*. Keep in mind that this proceeding totally deals with Land Mobile Service (§Part 90) operation. The §Part 97 timetable and mechanics of phasing hams out of 220-222 MHz will come later.

FCC PROPOSES NEW RULES FOR USE OF 220-222 MHZ BAND BY PRIVATE LAND MOBILE LICENSEES

The Commission is proposing to establish service rules for use of the 220-222 MHz band by private land mobile licensees. The proposed rules will establish the regulatory framework that is necessary before the Commission can license land mobile operators on the band.

On September 6, 1988, the Commission issued an order reallocating the 220-222 MHz band from the shared fixed, land mobile, and amateur services to private and federal government land mobile use only. The Commission's main goal in reallocating these frequencies was to provide unused spectrum for the development of spectrally-efficient narrow-band technologies. However, before the Commission can grant licenses for land mobile services in the reallocated band, rules must be established. The Commission is therefore asking for comment on the following proposals.

First, the Commission is proposing that two hundred 5 kHz channel pairs be created, with the channeling plan consisting of channel groups to facilitate trunked technology and blocks of contiguous channels for non-trunked and individual frequency assignments. [Editor's note: "Trunked technology" is the automatic handoff of communications to another less congested frequency. "Individual" refers to private businesses as opposed to individual people.]

The Commission believes that dividing the band into two hundred 5 kHz paired channels would be

"I am a currently licensed Extra Class amateur radio operator and wish to be a volunteer examiner. I have never had my station or operator license revoked or suspended. I do not own a significant interest in nor am an employee of any company or entity engaged in

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consistent with its objective of providing spectrum for the development of spectrally efficient narrow-band land mobile radio systems.

Second, the Commission has proposed to make most frequencies in the 220-222 MHz band available to any person or entity eligible under Subparts B-E of §Part 90 of its rules and to allow market forces to determine how much spectrum will be utilized by various types of users. The Commission proposes, however, to designate some of the nationwide channels as "noncommercial" for use by licensees to meet their own internal *[business]* communications needs.

The Commission will bar commercial *[common carrier]* operations from the individual channels for five years. At the end of the five year period, private carriers will be free to apply for unoccupied frequencies or to be assigned existing systems. Comments on the desirability of this time-limit set-aside for noncommercial operations are requested.

Third, the Commission will set aside two blocks of ten contiguous channels and eight blocks of five contiguous channels for use nationwide. The ten-channel blocks and four of the five-channel blocks would be available only to noncommercial nationwide licensees for their internal use.

Two of the remaining five-channel blocks will be reserved for government use nationwide. Except for the nationwide channels, Government and non-Government users will share the spectrum on a co-equal basis. Non-Government nationwide applicants must meet certain entry requirements, including submission of a certification that they will meet specified construction standards and a showing that they are financially qualified to construct the system they propose.

The Commission proposes to grant applications on a first-come, first-serve basis, using a lottery, if necessary, to assist in the licensing process. Each non-nationwide licensee will be afforded channel exclusivity using a 70-mile frequency reuse standard and will have a license term of five years.

Because nationwide licensees will need a significant period of time to implement their systems, the Commission has proposed a 10-year license term for nationwide licensees. The Commission will impose no loading requirements for a licensee to retain the license. It will, however, require licensees

seeking to obtain additional channels to make a showing of need by demonstrating a certain level of loading or use on existing facilities.

SIX AMATEUR SATELLITES TO BE LAUNCHED

AMSAT's **Bob McGwier/N4HY** filed the following status report on the planned launch of the Microsats and UOSATs. The U.S. launch team left for Kourou, French Guyana, on December 1st from Boulder, Colorado with the satellites. Various other team members will travel from around the world to the launch site on the northern coast of South America. All of the payloads should be aboard the Ariane IV rocket by Christmas. The launch was originally scheduled for last month.

The latest official launch date from Arianespace (European Space Agency) is January 9, 1990 at 0140 UTC plus or minus a few minutes. Four Microsats and two UOSAT birds will ride on a small satellite shelf designed for missions such as ours under the SPOT-2 satellite.

The launch window is determined by need for the primary mission, Spot-2, to be in a given sun-synchronous orbit. This will bring Spot-2, the Microsats, and the UOSATs overhead at about the same time each morning and evening.

Spot-2 is an earth resources satellite with a high resolution camera. The Microsats include two packet radio satellites, PACSAT and LUSAT, a camera and experiment satellite WEBERSAT, and a voice encoder educational satellite called DOVE (Digital Orbiting Voice Encoder).

PACSAT is sponsored by AMSAT-NA and TAPR. LUSAT is sponsored by AMSAT Argentina. WEBERSAT is sponsored by the Center for Aerospace Sciences and Technology (CAST) at Weber State College in Utah. DOVE is sponsored by **Junior De Castro, PY2BJO**, and Brazil AMSAT. All spacecraft had contributions made to them by the ARRL and its lab staff. The UOSAT satellites were constructed by the University of Surrey and are in the continuing tradition of UOSAT-9 and UOSAT-11.

This past week saw the finishing touches put on the initial flight software load. NK6K and N4HY worked on finishing off the software. **Harold Price, NK6K** finished the kernel, initial AX.25 software, the software loader, and the memory wash (to correct for radiation induced errors). **Bob McGwier, N4HY**

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finished the initial control code for each satellite.

On Thanksgiving day, **N4HY, Jan King, W3GEY, Jeff Zerr, and Greg Hines, WT0M** began making the final telemetry calibrations, and final testing of the battery charge regulation control loop, and the transmitter power control algorithm. All four Microsats had their algorithms extensively tested and the spacecraft were left running for days. The algorithms were run under simulation by simulating the solar arrays with a current limited power supply, various timers to simulate eclipses, and beginning from various states of battery charge. In every case, the overdamped control loops behaved perfectly. The hardware was extensively exercised under command code using AX.25 packets from a normal TNC. Various transmitters, experiments, etc. were tested. NK6K's memory wash routines and software loaders were repeatedly used without fault.

Finally, an end to end test, from ground station to algorithm controlling the DOVE voice experiments, was performed. The Motorola 68HC11 in the DOVE module acting as a very smart UART chip, was sent a program from the spacecraft IHU and it then ran the digital to analog converter (DAC). This provided an end to end test on both hardware and software that until this test had been run, had never been exercised as a system. It was a working testimonial to the modular approach taken in the spacecraft design.

A program to exercise the digitalker, the VOTRAX SC-02 chip, was loaded and speech was produced from the DOVE spacecraft for the first time. The entire DOVE speech hardware has now been shown to produce the correct signals and signal levels. This will promise to be an extremely loud signal with a 4 watt transmitter and 4 Khz deviation.

CAST had WEBERSAT the week preceding these tests. They tested all the experiments on their 'attic' which sits on top of a normal Microsat configuration. During this period and the last testing that occurred in Boulder, several pictures have been taken and downloaded via the packet channel. The camera produces very good pictures and the mechanical iris functions well. Other than a minor accident requiring several hours of work to repair, these tests went off without a hitch.

Finally after several days of running the control algorithms on the spacecraft, after all spacecraft

passed all their memory tests okaying a total of 32 Megabytes of storage, the control algorithms functioned appropriately, telemetry calibrated, and AX.25 being used to command the spacecraft, **Jan King, W3GEY**, project manager exclaimed that we had four live spacecraft, ready to begin on orbit operations.

There will be an extensive engineering test phase immediately after launch. It is vital that we have the cooperation of the amateur radio community. We must fine tune control algorithms in space, finish off the BBS code, hundreds of thousands of kilobytes of digitized voice must be uploaded to DOVE, and hours of upload of camera software to WEBERSAT must be accomplished.

NK6K and N4HY will be spending numerous hours each day at their QTHs and at the TRW radio club in Redondo Beach, Ca. getting the spacecraft fully loaded with software and taking the pulse of the spacecraft. In addition to the Microsats, NK6K and **WB6YMH, Skip Hansen** (who has written the low level I/O drivers for the Microsats) have extensive software responsibility for UOSAT. This promises to be a busy time for all.

If the spacecraft are launched on time in January, do not expect full operations to begin before late February. Your cooperation will speed the process and possibly lead to an early release of these spacecraft for full use.

CFA -- STRANGE NEW HF ANTENNA!

The latest issue of *Electronics & Wireless World* from England features test results of a highly unusual new HF ham antenna. The antenna could prove to be quite a boon to portable and indoor or condo HF operation.

The Cross-Field Antenna (CFA) was first revealed by authors F.M. Kabbary, M.C. Hatley and B.G. Stewart in the March 1989 issue of the magazine. They used Maxwell's electromagnetic wave principles to claim that normal HF transmitting antennas under-use or do not use a field, the "displacement current field", that could be used to increase an antenna's overall field intensity, and to create an effective antenna of small physical size. Their CFA antenna could supposedly put this concept into operation.

Amateur C. Bryan Wells [gave no call] used that

article to build several versions of the CFA, and reported good results on 80, 40 and 20 meters in the magazine's November 1989 issue. The CFA consists of two metal cylinders -- like coffee cans -- and two metal plates. Wells used cylinders 9" tall by about 8" in diameter. One cylinder is suspended above the other in a bracket. In the space between are two circular plates, also 8" in diameter. The overall size of the antenna is just 27 inches.

The HF transceiver is fed to a 50% power splitter. Each half of the power is fed to a transmatch, then to 300 ohm line. One side feeds the two plates, and the other side feeds the two cylinders. Wells' tests verified that the feedlines were not radiating and that the antenna seemed to work about as well as full-size dipoles, a double zepp and a large loop. Apparently, another feature of the design is that the antenna does not couple to conventional antennas in its vicinity. Wells wrote that no TVI occurred even though TV antennas were quite close to the CFA.

We hope that more hams will experiment with the CFA to verify the designers' unusual claim: "These antennas are extremely small, excellent receivers, powerful, efficient radiators and their physical size is independent of the radiated wavelength -- an unprecedented concept in antenna theory and design."

Amid international and corporate intrigue;
BOUVET ISLAND, DX CHRISTMAS PRESENT!

It now appears certain that tiny Bouvetoya (Bouvet Island) will be on the air sooner than planned! A Norwegian 3Y5X "Club Bouvet" DXpedition is racing to beat the United States' 3Y0B *Saturday Evening Post Society* voyage to the bitter cold Antarctic volcano!

Bouvet is owned and governed by Norway. Norwegian government officials have apparently chosen to give a DXpedition involving their amateurs a decided advantage. The entire situation has now taken on the atmosphere of international intrigue more similar of a race to the moon ...than activating faraway Bouvet on the ham bands.

Make no mistake about it! Bouvet, a useless 2,500 foot pin-prick jutting out of the South Atlantic, is the ham DX catch of the decade! It last saw amateur radio activity some eleven years ago as 3Y1VC.

Getting to, on and off Bouvet is extremely dangerous! Ringed with thirty foot waves and steep cliffs on all sides, heavy fog shrouds the ice-covered 22 square mile island. Although *Club Bouvet* has a helicopter on their ship, the *MV Aurora*, gale force winds make landing and departure very risky.

There also seems to be equipment competition, too. ICOM is providing five stations for 3Y5X; eight Yaesu FT-1000's were to become 3Y0B. Except for a station that fell through the ice into the sea, ICOM gear operated flawlessly at a top-of-the-world base station during the Soviet/Canadian over-the-(North)pole ski trek ...the last equipment test of this magnitude.

3Y5X will operate a couple of weeks from Bouvet on all bands ...and could be on the air as early as December 23rd. Their operators are scheduled to leave from Montevideo, Uruguay, this week. They will be operating at sea and perhaps more details will be given enroute. Listen (now) on 14.260 MHz. DXers are certain to be spending more time with their hf gear this Christmas than with their families.

The 3Y0B operation isn't due until February 1st. The nearest inhabited land, Capetown, South Africa, is 1,400 miles away. Bouvet is home only to penguins, seals and sea-elephants which are protected by Norwegian law. They too are playing a part in the rapidly developing Bouvet ham saga.

The U.S. *Saturday Evening Post Society Scientific/Radio Expedition* is headed up by Mike Koss, W9SU, of Indianapolis, IN. We spoke with Mike this past weekend. He said they were originally due to sail from Capetown aboard the *Deep Salvage I*, a 184 foot maintenance/salvage vessel, on January 25, 1990.

He has just received word, however, that the ship is no longer available to them and he is scrambling. There are two other options, another salvage ship (*Causeway Salvor*) and a deep sea tugboat (...the *Davie*). The *Deep Salvage I* was long term leased by a South African diamond mining operation ...the lease runs from Feb. 10 - July 15 at big bucks. The *Deep Salvage I* rents for \$4,000 a day "full steaming", \$3,200 daily at standby anchor. Mike put his boat bill at \$120,000 and maintains the chances of latching onto another ice-class vessel and experienced South Pole crew are good.

(See ***Bouvet Operation***, Continued on page 9)

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OCTOBER AMATEUR LICENSING STATS

| <u>October</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | |
|--|---------------|----------------|---------------|---------------|---------------|
| New | | | | | |
| Amateurs | 874 | 1002 | 923 | 1811 | |
| <u>Upgrading:</u> | | | | | |
| Novices | 505 | 1103 | 953 | 1454 | |
| Technicians | 190 | 362 | 356 | 533 | |
| Generals | 187 | 323 | 307 | 357 | |
| Advanced | 178 | 236 | 257 | 288 | |
| Total: | 1060 | 2024 | 1873 | 2627 | |
| <u>Renewals:</u> | | | | | |
| Total Renew: | 2783 | 2851 | 2120 | *193 | |
| Novices | 126 | 179 | 185 | * 29 | |
| <u>Purged:(**)</u> | | | | | |
| Total Drop: | 986 | 727 | 615 | **1175 | |
| Novices | 600 | 400 | 221 | **515 | |
| <u>Census:</u> | | | | | |
| Indiv. Oper. | 419311 | 430746 | 436963 | 466971 | |
| Change/Year | +8965 | +11435 | +6217 | +30008 | |
| <u>Individual Operators by Class:</u> | | | | | |
| <u>Extra</u> | <u>Advan.</u> | <u>General</u> | <u>Tech.</u> | <u>Novice</u> | <u>Total:</u> |
| <u>October 1985:</u> | | | | | |
| 38168 | 97864 | 117268 | 83361 | 76466 | 413127 |
| 9.2% | 23.7% | 28.4% | 20.2% | 18.5% | 100% |
| <u>October 1986:</u> | | | | | |
| 40824 | 97788 | 116218 | 85495 | 79986 | 419311 |
| 9.7% | 23.3% | 27.7% | 20.4% | 18.9% | 100% |
| <u>October 1987:</u> | | | | | |
| 43479 | 98287 | 114487 | 92267 | 82216 | 430746 |
| 10.1% | 22.8% | 26.6% | 21.4% | 19.1% | 100% |
| <u>October 1988:</u> | | | | | |
| 46413 | 98386 | 112954 | 100176 | 79034 | 436828 |
| 10.6% | 22.5% | 25.9% | 22.9% | 18.1% | 100% |
| <u>October 1989:</u> | | | | | |
| 49883 | 101725 | 116797 | 113786 | 84780 | 466971 |
| 10.7% | 21.8% | 25.0% | 24.4% | 18.1% | 100% |
| Club/ | | | | | |
| RACES & | (1986) | (1987) | (1988) | (1989) | |
| Military | 2631 | 2412 | 2288 | 2462 | |
| Total Active | 421942 | 433158 | 439251 | 469433 | |
| % Increase | +2.1% | +2.7% | +1.4% | *+6.9% | |
| Adjusted for ten year license term: | | | | | *+.15% |

* **Renewals:** Even though it appears the amateur service is **growing at a 6.9% rate**, this is not the case. In fact the amateur service isn't growing at all ...and the rate of increase continues to decline. Due to the implementation of the 10-year term license in 1984, there were 29,542 less renewals this year. (33,023 during the first ten calendar months of 1988, only 3,481 for the comparable period this year.) Assuming the same drop-out rate, if you

adjust for this difference, the number of U.S. amateurs would be **up only 640 individuals - a gain of about one/tenth of one percent!**

**** Purged licensees** ...are the number of amateurs who have failed to renew their licenses **...and whose two-year grace period has expired**. Licensees within this period may have their operator license reinstated simply by submitting a Form 610. They will retain their previous call sign. Amateurs who have let their license lapse more than two years - but less than five - will be assigned a new call sign - but need not be retested. (Amateurs must be completely re-examined beyond the five year period.)

The 1175 (**) licensees who were purged (dropped) from the FCC's "**Master File**" actually represent amateurs who let their ticket lapse in 1987. The FCC's Master File contains 487,895 amateurs. The following is a comparison between currently licensed hams and those within the grace period.

| <u>Extra</u> | <u>Advan.</u> | <u>General</u> | <u>Tech.</u> | <u>Novice</u> | <u>Total:</u> |
|--|---------------|----------------|--------------|---------------|---------------|
| <u>Amateurs currently licensed as of 10/31/89:</u> | | | | | |
| 49883 | 101725 | 116797 | 113787 | 84780 | 466971 |
| <u>Amateurs within Grace Period: as of 10/31/89:</u> | | | | | |
| 667 | 2638 | 4527 | 3928 | 9164 | 20924 |
| <u>Total Amateurs in FCC Master File as of 10/31/89:</u> | | | | | |
| 50550 | 104363 | 121423 | 117714 | 93944 | 487895 |

The FCC will continue to purge their files throughout 1990. After December 1990 all licensees who let their ticket expire prior to December 1988 will have been purged from the *Master file*. There will then be no further licensees dropped from the *Master File* for five years due to the implementation of the ten year license in 1984.

Please pardon the (rather boring) detailed explanation, but we were asked to explain how amateurs could be dropped from the ham ranks when starting 1989 (and for the following five years) there would be no renewals and no dropouts due to the implementation of the ten year term ticket. In a sentence, those "dropped" are from the *Master* and not the *Current File*.

By the way, you will be interested to know that the **Callbook** lists the FCC's *Master File*. (Just because a U.S. amateur is listed does **NOT** mean their license is current!)

Source: FCC Licensing Facility, Gettysburg, PA

(one year) 3rd and 3rd Adv. (pr E) Class
(4B). Cost: \$5.95 each plus \$1.50 shipping/handling. W5YI Report;
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Device course. Cost: \$19.95 plus \$2.00 shipping. New \$Part 07
Amateur radio Rules included **FREE!** Order shipped the same day mail
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Device course. Cost: \$19.95 plus \$2.00 shipping. New \$Part 07
Amateur radio Rules included **FREE!** Order shipped the same day mail
order is received. W5YI; P.O. Box #565101; Dallas, Texas 75356.

- **Our own FCC has completed the staff work for a U.S. code-free class of amateur license.** A proposal for a Notice of Proposed Rule-

making has been submitted to the Commissioners, but it is not known when they will be getting to it ...although it could come at any time. Best guess? After Christmas.

● **RCR (Radio Communications Report) of Nov. 20th** tells how the American Radio Relay League and the U.S. Justice Dept. have appealed the FCC ruling that designated the 220-222 MHz band for narrowband land mobile communications. The challenges were filed in the U.S. Court of Appeals for the District of Columbia Circuit. A schedule for written briefs and oral arguments has not been set. ARRL argued the FCC action will hinder the establishment of emergency data communications networks around the country by restricting access to 220-222 MHz channels. "Justice's interest in the case is unclear," RCR said, "although concerns were raised in the FCC proceeding about national security emergency preparedness being undermined by a loss of amateur frequencies."

● **The November issue of TV Technology, a television engineering publication**, says that the FCC laboratory is operating with equipment dating back to the 1940s! Sen. Bob Packwood (R-Ore.) asked the FCC to determine what it would take to modernize its operations after Atari told Congress the lab facilities were inadequate. FCC Chief Engineer Tom Stanley presented two options for lab renovation. Option A would replace aging spectrum analyzers, signal generators, PCs and EMI software. Option B would provide complete modernization, including the purchase of two devices, a \$2.5 million anechoic chamber and a \$150,000 transversal electromagnetic cell (commonly referred to as a TEM cell), for testing consumer television and radio receivers. The Communications Amendments Act of 1982 gave the FCC authority to establish RFI susceptibility rules for home entertainment equipment but the FCC lab currently has no means to test the products. The

TEM cell consists of a metal enclosure with precisely measured RF properties. The lab would use it to apply high-level RF fields to victim receivers in order to determine their RFI susceptibility.

● **ARRL HQ has honored Phyllisan West, KA4FZI**, as 1988 ARRL Professional Instructor of the Year, and **Fred Cady, KE7X**, as 1988 ARRL Herb S. Brier (volunteer) Instructor of the Year. For their success stories, see January QST. **Rosalie White, WA1STO**, writes "If you have or know a terrific volunteer Amateur Radio instructor or teacher who integrates Amateur Radio into the classroom, let us know! Here is your chance to thank them for all that they accomplish and to recognize them nationwide. Send your 1989 nomination to your Section Manager (page 8 QST) before January 31, 1990." By the way, ARRL is looking for a new chief operator for W1AW to replace retiring station manager, Chuck Bender, W1WPR. Contact **John Lindholm, W1XX**, if interested at League HQ.

● **The Winter 1989 Quarter Century Wireless Association Journal** devotes a good bit of space to the code-free license class issue. Meeting at its National Convention in Baton Rouge, the QCWA Board issued the following official statement "QCWA recognizes the extensive experience of its membership and its concern for the long term future of Amateur Radio. Therefore QCWA will express its comments and recommendations with respect to the no-code issue at the time the FCC issues its *Notice of Proposed Rulemaking*." **Ted Heithecker, W5EJ**, QCWA General Manager editorialized "As recently as 5 years ago the possibility of a No-Code amateur license was about zero. Now, only the blink of an eye later, No-Code is essentially assured. Conditions change, priorities change and, more importantly, people change. Society has the right, yes even the obligation, to sustain and defend itself. It can only do this by adopting attitudes and laws that accommodate the

changes in our beliefs, perceptions and needs. Change is a fact of life - and political animals (we humans) are quick to realize that if we can't get what we want today, try again tomorrow."

● **The December Byte computer magazine, has a packet radio article** entitled "Making Waves." When the microprocessor came along, it says, "...hams became hackers, and the measure of electronic innovation switched from megahertz to kilobytes. The result has been a marriage of PC and radio technologies ...and an application called packet radio." The article explains the digital system of transmitting error-free communications is available only to licensed ham operators. "The next project on the drawing board is PACSAT (packet satellite), a compact flying mailbox. PACSAT will upload messages when it flies by, and then download when it is over the receiving station's location. Tomorrow, an operator will be able to carry a small laptop computer/transceiver/packet modem and be in touch with friends around the world."

● **"Power Play" (December Discover magazine)** estimates that 10-15% of all childhood cancer in the U.S. may be due to power line fields. "Below 300 hertz are the aptly named extremely low frequency waves ...or ELF's. These include the 60-hertz waves given off by power lines in the U.S., household wiring and all electric appliances..." Biggest problem is lack of understanding regarding the effect of magnetic waves on the human body. Funding is lacking ...and research conducted by power companies is worthless since they only release information when it is in their interest. Most federal agencies have all but ignored ELF's. The *Environmental Protection Agency* has cut its ELF funding to zero and dismantled its electromagnetic radiation laboratory. Interestingly, the article says that radio waves between 1 megahertz and 1 gigahertz "...in any dosage, have not been linked to health hazards.

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(Bouvet operation, continued from page 5)

Permission to land at Bouvet has to be obtained from the Norwegian *Ministry of Environment* in Oslo. Quoting from his written letter of authorization; Koss received a "...dispensation from the regulation concerning protection of Bouvetoya as a nature reserve [since your expedition is] after the breeding season. [Since] you have abandoned your intention to land by helicopter the risk to disturbing animal life is minimal." Mike chose the February timeframe to specifically avoid disrupting the December wildlife birthing season, a major point of contention with the Norwegian government. Furthermore, landing would now be carried out with a small inflatable boat so as not to disturb breeding/nesting wildlife at a delicate time.

Mike reports that his group had earlier invited the Norwegian *Club Bouvet* operators to accompany his voyage at no cost. They responded they were unable to accept "...due to the timing of the trip and other obligations." Their refusal was "...rather harsh," Mike said. "The *Club Bouvet* group felt it was a waste of their talent and experience to join our expedition." It now appears their timing and obligation problem was an early excursion to Bouvet Island.

Confusingly, *Club Bouvet's* operation takes place the very season Norwegian officials previously objected to on wildlife grounds ...and the Norwegian group will indeed land by helicopter! It is beginning to appear that Norway's *Ministry of Environment* is more concerned with their amateurs arriving on Bouvet first ...than with environmental impact. The penguins have become innocent pawns.

The *Post Society's DXpedition* is fully funded - primarily by corporate sponsors such as IBM, a big supporter of *National Geographic* television. The DXpedition could end up as a broadcast special with incredibly valuable PR for ham radio. The DXpedition's scientific program is some thirty pages long and involves biologic, environmental and rock studies conducted by some fourteen major universities including a volcanic lava study by M.I.T. On the other hand, *Club Bouvet* still needs money and they are appealing for funds to be sent to Box 88, N-1361, Billingstadsletta, Norway.

Mike provided us with complete details of his Bouvet sideband and CW operation (complete with an available \$5.00 "*Bouvet Island Award*" certificate) but it appears pointless to go into them at this point

...particularly in view of the earlier planned Norwegian landing. The U.S. beam headings (130 degrees/west coast increasing to 140 degrees in the east) might be useful to you though.

Mike/W9SU said his group is now considering splitting into two teams with an additional landing at *South Sandwich Island* where they have a landing permit and amateur operating license. South Sandwich is one of the Falkland Islands in British Antarctica. Both South Sandwich and Bouvet would be on the air at the same time. "Films of the DXpedition should be available to the amateur community ...although broadcast rights have been sold to the National Geographic Society. We also have an agreement with QST to write an article and possibly provide a cover for the May issue."

TELL UNCLE SAM WHAT TO DO WITH THE SPECTRUM!

"This is the time to stand up and be counted by responding, because you may not get another opportunity for 20 years." - Janice Obuchowski, Assistant Secretary of Commerce for communications and Information

The 220 MHz debacle sensitized a lot of hams to the FCC's mysterious ways of administering the radio spectrum. The American way of managing the spectrum is often criticized as too expensive and unfair to the little guy, too slow to respond to technical innovations, ...and plagued by inadequate monitoring and enforcement. *Got a better idea?*

Now you have an opportunity to tell the government exactly how U.S. spectrum management could be changed and improved. The *National Telecommunications and Information Administration* (NTIA) has just issued a *Notice of Inquiry* (NOI) soliciting comments from the public on the full range of spectrum management questions.

NTIA is part of the Commerce Department and is the President's chief advisor on telecommunications matters. NTIA has authority to license federal government spectrum users. FCC Chairman Al Sikes was previously head of NTIA.

NTIA administrator Janice Obuchowski said the study "...will establish the spectrum policy foundations that will lead the U.S. into the 21st century." She strongly encouraged comment from manufacturers of radio equipment, firms providing services

using the spectrum, individual spectrum users, developers of new technologies, and federal agencies that use spectrum. Even the FCC is entitled to comment on this one!

The economic stake in the radio spectrum is enormous. Obuchowski noted that in 1988 the value of radio equipment shipments in the U.S. was \$54 billion -- more than three times the investment by telephone companies in local telephone facilities. U.S. exports of radio equipment were \$4.6 billion.

NTIA hopes that comments from the public will help it develop recommendations to the FCC on how to be more efficient and responsive to spectrum users and new technologies. However, except for those matters that fall within NTIA's jurisdiction over federal agencies and certain policy areas, it is up to Congress and the FCC to implement the changes. Obuchowski said that NTIA plans to issue its final report by the end of 1990, and that she hopes the changes could be implemented in what she called the "...first term of the Bush administration."

The *Notice of Inquiry* addresses five major topics: regulation, block allocation, alternatives for apportioning spectrum, spectrum conservation and new technologies, and forecasting future spectrum needs.

Here are some of the questions that NTIA is asking the public:

NTIA invites comments on the role of private groups and companies in spectrum management. [*In Amateur Radio, voluntary frequency coordinators plan regional and local spectrum usage. - Ed.*] NTIA wants to know how effective private groups have been, how well they advance the interests of parties not already using the spectrum, and what government oversight over the groups is needed.

Should databases of frequency assignments and equipment characteristics be kept and made publicly accessible?

Should there be a single authority to centralize or focus national telecommunications policy and coordination?

Both international and U.S. tables of frequency allocation divide the spectrum up into blocks for use

by particular radio services. How successfully does this system accommodate growth of expanding and new services?

Restrictions in the current structure may cause users to operate out of band or to be denied use of the spectrum altogether. Would the situation improve if the definitions of some radio services were changed? If a new service is offered in a band that is allocated primarily for some other use, when should the service be moved? What changes might enable the system to better accommodate regional, temporal (time) and other variations in spectrum usage?

Existing users may have few incentives to change to new, more spectrum-efficient technologies. The outdated technology becomes entrenched, since the current users would incur seemingly unwarranted costs to update their equipment. How could the current system be changed to encourage spectrum-conserving technologies when crowding occurs? Should spectrum managers seek to force or encourage conversion to the new technology?

Should spectrum users be granted property rights in the spectrum? Would a market-based system (such as auction of spectrum) be any more efficient or fair than the current system? Who would gain and who would lose from such a system?

Should the government do more monitoring of the spectrum? If so, how should the monitoring be funded?

Should radio use be permitted when non-radio means of communication is readily available?

How does the increasing use of spectrum by non-licensed devices affect other spectrum users? How should the value of non-licensed devices be determined in comparison to licensed radio services? How should the spectrum manager consider desires of consumers?

There are many more thought-provoking questions to be answered, so warm up your word processor -- and your brain amplifier! The entire *Notice of Inquiry* was published in Section III of the December 8, 1989 Federal Register. This publication is available in many libraries; any librarian ought to be able to locate it for you. Comments on the NOI are due on February 23, 1990 ...and reply comments are due by March 30, 1990.